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Chairman Robert Godshall
Pennsylvania House of Representatives
Consumer Affairs Committee

Testimony of Andrew J. Kleeman related to House Bill 1580

Chairman Godshall and members of the Committee, thank you for the opportunity to share my insights with regard to House Bill 1580. As my testimony will illustrate, this is an urgent matter for the committee to consider.

My name is Andrew Kleeman. I am here today as both a board member of the state's professional organization for solar power (PA SEIA) and as a Senior Vice President at Mercury Solar Systems, Inc. ("Mercury"). Mercury is a leading east coast solar company that was, until very recently, a leading employer in Pennsylvania in the solar sector.

Over the course of my 26 year career, I have launched and grown three small businesses in our Commonwealth. These businesses have collectively employed over 200 Pennsylvanians. They have enjoyed market expansions and have endured market contractions. Through all of those cycles, I have never before felt so compelled to publicly advocate for specific Bill, but this issue is both critical and urgent.

In my testimony, I would like to address just three issues. First, I will discuss the positive impact the Pennsylvania Solar Industry has had on employment, as well as the current, dire and imminent threat to that employment. Second, I will discuss the Cost to Rate Payers of the pending Bill and illustrate its negligible impact. Lastly, I would like to briefly comment on the concept of free markets, as it relates to the Pennsylvania solar industry. My concluding point will be that House Bill 1580 is a market-based,

inexpensive, and highly cost-efficient mechanism to halt the in-progress collapse of a viable and important new industry.

Issue #1: Employment Issues:

I would like to start this point with a set of irrefutable and heretofore confidential facts that I hope you will find as stunning as I do:

In November 2007, my nascent solar company, Eos Energy Solutions, employed a total of two people – myself and a marketing intern. By November 2008, we had doubled that staff to four, and we were up to 16 by November of 2009. By November of 2010, we had merged with a regional solar leader, Mercury Solar Systems. Mercury then invested heavily in the Pennsylvania operations and our Pennsylvania head count ballooned to 42. That is 42 well compensated Pennsylvanians – more than half of whom had been unemployed or underemployed construction workers.

This tremendous employment growth was achieved during the worst economic times since the Great Depression – a period in which Pennsylvania's unemployment rate rose from 4.5% in November 2007 to 8.6% in November 2010¹

At the end of 2011, our Pennsylvania operation employed two. Forty-two to two, in just the past two quarters.

I concede that anecdotal evidence is not always indicative of larger trends. Also, I must clarify that the majority (but not all) of the 40 former Pennsylvania employees of Mercury were transferred to states with expanding markets - most notably Maryland, Massachusetts and New York. Yet even as a single data point, the data still speaks to the loss of 40 jobs and 40 tax payers in our Commonwealth. Those jobs are not coming back any time in the foreseeable future without passage of House Bill 1580.

More importantly, the Mercury experience IS indicative of what is now happening in the Pennsylvania solar industry – it is not just anecdotal. An industry that grew rapidly over the past four years is now facing an extraordinarily rapid contraction.

In my role with PASEIA, I consistently hear the chagrin of my fellow Pennsylvania solar installers. Most of these companies are based exclusively, or predominantly in Pennsylvania. They have neither the resources nor the will to reallocate their staffs to stronger solar markets in the surrounding states. It is

¹ US Bureau of Labor Statistics

my testimony that every solar company I am aware of in our Commonwealth is either contemplating or has already begun draconic staff reductions; not some, not most, but every single one.

The total number of jobs at stake is large. Exactly how many solar full time equivalent ("FTE") solar jobs there are in Pennsylvania is debatable. I believe the most definitive analysis of solar jobs is the October 2011 "National Solar Jobs Census 2011" prepared jointly by Cornell University and BW Research for the Solar Foundation. That 68 page, peer reviewed analysis places the PA Solar Jobs figure at 4,703. The full 68 page analysis is available at <http://thesolarfoundation.org/research/national-solar-jobs-census-2011>, or from myself upon request.

We did our own analysis at Mercury Solar Systems and arrived at a moderately lower figure for Pennsylvania solar employment. At our peak Pennsylvania head count of 42, we built approximately 2.6% of the new Pennsylvania solar capacity in the 12 months preceding July 1, 2011. Our head count in Pennsylvania of 42 did not include engineering, procurement, and accounting resources in our corporate offices. Nor does it include any manufacturing, distribution, subcontracted specialty trades, legal, or utility labor devoted to solar. Following common sense, and the model defined in the Cornell study, we applied a 1:1 ratio of our internal Pennsylvania headcount to total solar FTEs associated with our work. Therefore, we projected a labor force of 84 to construct 2.6% of the market, yielding a projected total Pennsylvania solar workforce of 3,230.

This simple analysis does not factor the reality that Mercury's scale and experience allow us to build systems more labor efficiently than the Pennsylvania solar industry mean. If we assume that Mercury can build systems 20% more efficiently than the industry mean, the total state wide head count number from our internal analysis approaches 4,000.

The precise number is not germane. The critical point is that Pennsylvania solar jobs number in the thousands – not the hundreds. Whether it is 3,000 jobs or 5,000 jobs, the same imperative exists to pass House Bill 1580 to prevent massive layoffs.

Issue #2: Cost to Rate Payers:

Rate Payer impact is, appropriately, a critical consideration for House Bill 1580. We are living in austere times. These days, both our state and federal governments have a heightened responsibility for fiscal prudence. And that is exactly why House Bill 1580 is the right solution to a critical problem.

As I will document below, the cost of implementing House Bill 1580 was always modest (costing the average rate payer less than a penny per day), but the most current Ross Amendments simply borrow SRECs from future years – it is a net neutral impact on costs.

As with the various projections of the size of the Pennsylvania solar labor force, projections of the original cost of implementing House Bill 1580 cover a wide range. I have included in my testimony three straight-forward and credible analyses supporting a conclusion of nominal cost to individual rate payers. The substantial majority of Pennsylvania’s four million rate payers are residential customers and each of them would be exposed to less than a penny per day of additional costs when House Bill 1580 is implemented.

The analyses are summarized in the following table, and are included as attachments to this testimony:

Analyst	Residential Rate Payer		Ave. C&I Rate Payer		Total Long Term Cost
	\$/Day	\$/Year	\$/Day	\$/Year	
Dayhill, 6/11	0.01	3.91	0.15	55.88	\$165,763,724
PASEIA 11/11	< 0.01	1.63	0.06	22.79	\$113,315,417
PennFuture 11/11	< 0.01	1.30	Not Calculated		\$90,782,946

All of these analyses follow a methodology of estimating the increased value of SAECs (“SRECs”) multiplied by the total number of SRECs to be sold in the period effected by House Bill 1580. The variances among the analysis conclusions are primarily a function of different projections in future SREC values. Among the three presented analyses, the projected future peak value of SRECs ranges from \$190 (PASEIA 11/11) to \$275 (Dayhill, 6/11), as opposed to a current spot market trading value of \$30.

Other Cost to Rate Payer analyses presented elsewhere have assumed future PA SREC values to be in excess of the \$325 Alternative Compliance Payment (“ACP”), as proposed in the amended House Bill 1580. Even rudimentary supply/demand curve analyses of the PA SREC market repudiate any projected future PA SREC value above (or near) \$300. Moreover, the proposed amendment creating a \$325 ACP is, effectively, a cap on SREC values. Subsequently, I urge the Committee to summarily reject any Cost to Rate Payer analysis which places the projected SREC value at or above \$325.

Based on the preceding Table, and the attached full analyses, I see a total potential cost to Rate Payers of \$165 million, and a more likely actual cost of \$113 million. While \$113 million is a substantial sum, it spread over more than four million Rate Payers. It may also be a smaller sum, spread over a longer period of time and, than the alternative cost (in UC benefits and loss of payroll tax revenues) of not passing House Bill 1580.

Issue #3: Free Markets:

There has been much discussion - important discussion – of free markets in the energy sector and the desire to allow the market to guide our energy choices. I support that fundamental concept, but I temper the support with the reality of our situation.

With the expiration of the Pennsylvania solar rebates and grants, House Bill 1580 is a necessary modulation to what is now, finally, a market driven solar sector. We are not seeking any tax payer dollars – we are simply seeking an adjustment to the rules under which the SREC market will function. We created the hyper growth that now threatens a market collapse. Reasonable societies do not allow avoidable fatal market crashes where so many livelihoods are at risk, and the promise of cheap power is so close at hand.

I remind the Committee that even the global icon of free markets, the New York Stock Exchange, has built-in stops and market freezes to preclude catastrophic collapses.

Our state and federal programs that gave solar a chance have been incredibly successful. The gross cost of solar power has plummeted as a direct result of short term market access allowed by a myriad of programs. We are on the cusp of the holy grail of solar: grid parity. Today, solar power already costs less, over term, with no subsidy whatsoever, than unsubsidized nuclear power or unsubsidized coal with carbon sequestration. Give us a reasonable set of corrected market rules to play by and we will continue to drive down the cost of energy for the Commonwealth.

Conclusions:

House Bill 1580 is an imperative action for this Assembly. Over 3,000 Pennsylvanians face the specter of unemployment and failed businesses if this Bill is not passed, and the great efforts this state has made to be a national leader in renewable energy will be negated. The cost of this Bill was always modest, but as recently amended, it is a net neutral.

Pennsylvanians, like the majority of Americans overwhelmingly support continued growth of the solar sector as part of our long term energy solution². Please bring 1580 to an affirmative Committee vote immediately.

Thank you

Sincerely,



Andrew Kleeman
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² Kelton Research survey between September 29 and October 6, 2011, among at least 1,000 nationally representative Americans ages 18 and over. 89% of all Americans think continued development of solar power is important. When asked if government should selectively support any type of energy development, 16% of Americans said "no", while the majority were supportive of governmental support of specific energy development initiatives. Among the majority who are in favor of government support, more favor solar than any other energy source. http://www.seia.org/cs/news_detail?pressrelease.id=1670

POTENTIAL IMPACT OF PA HOUSE BILL 1580

PREPARED BY DAYHILL GROUP LLC

JUNE 22, 2011

Introduction

In May 2011, State Representative Chris Ross (R – Chester) introduced PA- HB # 1580, which, among other things, is intended to help fix the temporary collapse of the Pennsylvania Solar Renewable Energy Certificate (“SREC”) market by:

1. Accelerating the mandates of solar energy production during the period of July 2012 through July 2014 (“the Acceleration Period”).
2. Closing off the Pennsylvania SREC market to facilities located outside of the state.

The comprehensive strategy is meant to both stimulate the demand and reduce the source of supply for SREC’s during the Acceleration Period. This should increase the value of SREC’s, which in turn should increase the amount of capital available for investments in solar projects.

Dayhill Group LLC (“Dayhill”) is an integrated construction risk management company with a concentration in the renewable energy sector. Passage of PA – HB # 1580 is clearly in our best interest, and we naturally support the bill.

Regardless, our analysis herein is meant to provide a quantitative view of the increased cost and the allocation of such cost due to the potential passage of the bill. While such analysis necessarily includes certain assumptions, we have attempted to make these assumptions reasonable and provide for meaningful data which can be used in the decision making process.

We make no judgments or guarantees on any prospective data contained herein. We present these findings for informational purposes only.

Overall Increase in Costs

PA – HB # 1580 would increase the required percentage of energy produced to be derived from solar during the Acceleration Period. These increases (presented as a percentage of total energy derived from solar) are shown in the table below:

<u>Period</u>	<u>Current Requirement</u>	<u>Proposed Requirement</u>	<u>Percentage Increase</u>
July 2012 through June 2013	0.51%	1.50%	194.12%
July 2013 through June 2014	0.84%	1.70%	102.38%
July 2014 through June 2015	1.44%	2.04%	41.67%

Dayhill has used these proposed increases, as well as data related to total projected electric sales and current and projected SREC pricing in order to calculate a potential increase in total costs that would be incurred as a result of the passage of PA – HB # 1580. This increase is summarized in the table below:



Dayhill Group LLC
Estimated Increase in Power Costs
As a Result of PA HB 1580

Current					
Power Year	Total expected Electric Sales (a)	Solar Mandate (%)	Total SREC's	SREC Value (b)	SREC cost
2013	145,076,399	0.51%	73,989	80	5,919,117
2014	147,361,122	0.84%	123,783	80	9,902,667
2015	149,684,900	1.44%	215,546	80	17,243,700
Total cost					33,065,485
Proposed					
Power Year	Total expected Electric Sales (a)	Solar Mandate (%)	Total SREC's	SREC Value (c)	SREC cost
2013	145,076,399	1.50%	217,615	240	52,227,504
2014	147,361,122	1.70%	250,514	250	62,628,477
2015	149,684,900	2.04%	305,357	275	83,973,229
Total cost					198,829,209
Total increase					165,763,724 (d)

(a) Based upon data provided to us by the President of the PASEIA.

(b) Based upon current SREC spot market pricing.

(c) Based upon estimates provided by the PASEIA. A sensitivity analysis utilizing different values can be provided upon request.

(d) The increase includes both changes due to increased SREC's and changes in the value of existing SREC's. This provides for a comprehensive number of total price increases.

The total increase of approximately \$166 million is based upon our internal calculation. This may or may not be similar to other calculations you might have seen. We have attempted to take a reasoned approach that considers both the potential increase in the number of SREC's generated and the value of all SREC's generated.

We have personally seen other estimates that are much lower. Many of these estimates include only the additional SREC's multiplied by their expected value. Our estimate takes a conservative approach wherein we also add in an amount equal to the product of pre-change SREC's generated multiplied by the difference between the estimated revised pricing less the current spot market price.

We have not personally seen any higher estimates than our own.

Allocation of Increase in Costs

Our next step allocates this overall cost increase to the following consumer groups:

- Residential
- Commercial and industrial



We utilized the total 2009 allocation of MW energy demand per consumer type as presented (on page 20) of the “Electric Power Outlook for Pennsylvania 2009 – 2014” published by the Pennsylvania Public Utility Commission on July 10, 2010 as our basis for this allocation. While we recognize this allocation might change, it is the latest publicly available source of data and should provide for a reasonable proxy of future usage.

This allocation is presented in the following table:

	Residential	Commercial and industrial	Other	Sales for Resale	Total
Total demand (MW)	51.32	93.34	1.34	2.33	148.33
% of total	34.60%	62.93%	0.90%	1.57%	100.00%
Total allocated cost - year 1	16,022,167	29,140,457	418,344	727,419	46,308,387
Total allocated cost - year 2	18,242,521	33,178,746	476,318	828,225	52,725,809
Total allocated cost - year 3	23,087,646	41,990,860	602,826	1,048,197	66,729,528
Total	57,352,334	104,310,063	1,497,488	2,603,840	165,763,724

Our next step was to develop an estimate of total users by consumer group. We determined this by applying the total usage as noted in the table above to an estimate per unit usage total. Such per unit usage total was based upon our knowledge of the industry and via discussions with our colleagues.

This estimate is provided in the following table:

	Residential	Commercial and Industrial	Other	Sales for Resale	Total
Total demand (MW)	51.32	93.34	1.34	2.33	148.33
% of total	34.60%	62.93%	0.90%	1.57%	100.00%
Average usage - unit (Kwh) (a)	10,500	150,000	n/a	n/a	n/a
Average usage - unit (Mwh)	0.0105	0.1500	n/a	n/a	n/a
Average usage - MW	0.0000105	0.0001500	n/a	n/a	n/a
Total users (a)	4,887,687	622,267	n/a	n/a	n/a

(a) Based upon knowledge of the industry and discussions with industry peers.

Our final step was to develop an estimate of the average increase per each user. We determined this by dividing our estimate of total cost increase by user group into our total estimate of users.

This estimate is provided in the following table:



	Residential	Commercial and Industrial	Other	Sales for Resale	Total
Total increased cost per user - year 1	\$ 3.28	\$ 46.83	n/a	n/a	n/a
Total increased cost per user - year 2	3.73	53.32	n/a	n/a	n/a
Total increased cost per user - year 3	4.72	67.48	n/a	n/a	n/a
Total - Acceleration period	\$ 11.73	\$ 167.63	n/a	n/a	n/a

Note: For the purpose of this presentation, Dayhill did not allocate amounts to other and sales for resale groups. These two groups account for less than 2.5% of the total users.

Conclusion

Utilizing historical and projected data, Dayhill has developed an internal estimate on the potential pass through cost to consumers of the adoption of PA – HB 1580. Our calculation resulted in a total pass through to residential users of less than \$12 and to commercial and industrial users of approximately \$168 during the Acceleration Period.





RATEPAYER COST IMPACT OF PA HOUSE BILL #1580

HB1580 was introduced on October 3, 2011 by Rep. Chris Ross, which now includes 109 co-sponsors as of November 10, 2011. This bill does not increase the overall solar share requirement but instead simply helps mitigate the current problem with the alternative energy credits market for solar, usually referred to as solar energy credits (SRECs).

BOTTOMELINE - This bill will cost residential customers less than ½ penny a day for only five years.

SUMMARY OF THE PROBLEM

The solar industry and its customers are currently experiencing a dramatic drop in the price of solar credits due to the lack of market demand for the credits. Because of the massive oversupply of solar credits compared to the very small requirement, the credit value has dropped over 90% in about nine months from over \$300/SREC to *under* \$30/SREC. This situation is getting worse and it is not going to improve for the next few years because the number of solar credits utilities are required to purchase by law is currently set too low for the number of projects in operation and those being planned. As a consequence, there is virtually no market for Pennsylvania's solar alternative energy credits which means the solar projects, as well as the overall solar workforce has virtually come to a standstill, either causing massive layoffs, closing down of businesses, or relocating businesses and jobs out of Pennsylvania.

As of November 7, 2011, Pennsylvania has 120 MW of solar PV capacity, with an additional 38 MW of PV capacity installed out of state registered in the PA Alternative Energy Portfolio Standard (AEPS) program. Below shows a graph of the current solar share requirement between reporting years (RY) 2009 and 2012, compared to the SRECs that have been generated and reported into GATS from these solar PV systems so far.

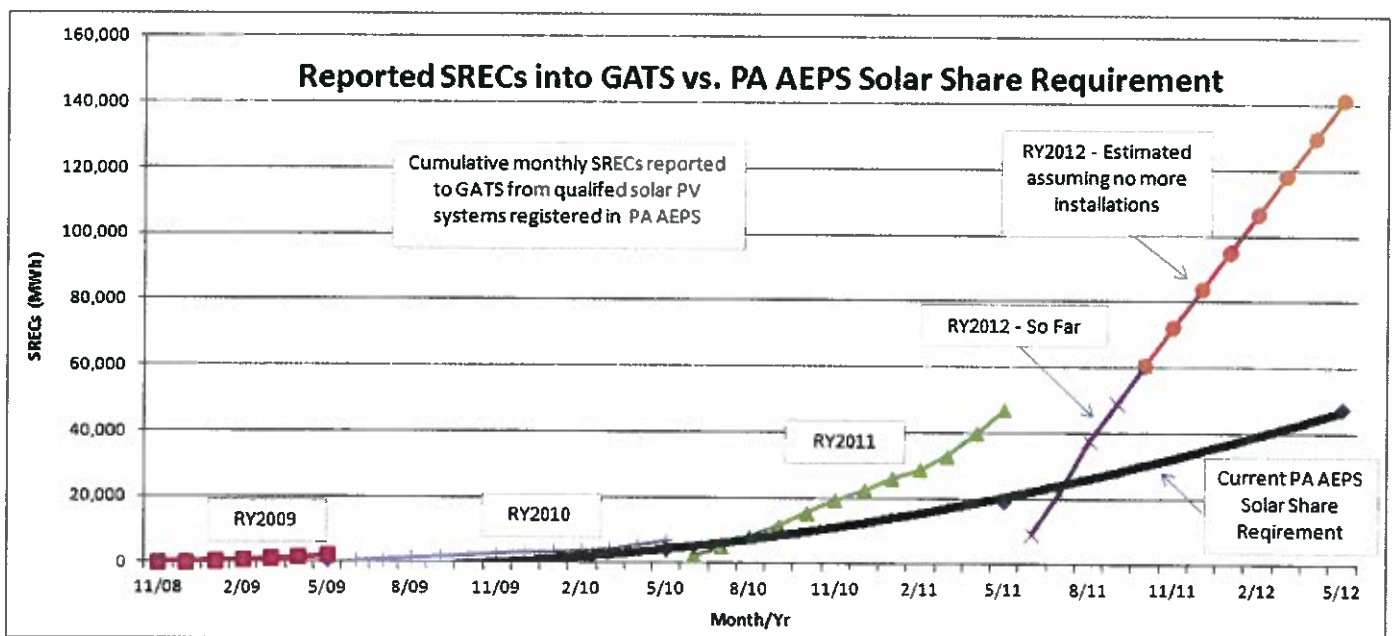


Figure 1. Reported SRECs vs Solar Share Requirement

As can be seen in Figure 1, the recent explosion of installed solar PV systems have been generating and reporting a substantial oversupply of SRECs into GATS, consequently resulting in the plummeting of SREC prices. The figure also clearly illustrates that this oversupply will remain for well into the future, if this problem is not corrected. Even if no more new solar systems register with the AEPS Program, it can be estimated by the end of RY2012 (May 31, 2012) there will be at least three times more SRECs reporting into GATS than what is required.

PROPOSED SOLUTION – HB1580

Representative Chris Ross’s HB1580 does two things:

1. Provides for a small adjustment to the solar requirement in the years 2012-2013 through 2014-2015 so the requirement more closely matches the growth in solar demand with the market. The Ross legislation will **not** increase the overall solar share requirement but simply moves the requirement forward.
2. Pennsylvania “borders” are currently open to out-of-state projects. This is contributing to the influx of projects from other states. Pennsylvania is the only state that accepts solar credits from any of the other 13 PJM states. Ohio also has open borders, but it is very limited. Pennsylvania ratepayers are currently supporting these out-of-state projects. The Ross legislation closes this loophole.

As described above, this bill is intended to help re-align the solar share requirement relative to the existing market of solar PV installations in Pennsylvania. This correction will allow for new solar projects, and those projects on hold, to move forward at a modest pace; otherwise, the solar industry expects that no more projects will be installed in PA for at least three years.

In this bill, the solar industry has proposed to increase the solar share requirement only for the next three years, but then continue with the existing solar share requirement percentage thereafter. The following table shows the existing and proposed solar share requirement percentages starting at 2010:

Reporting Year	Current Solar Share Percentage	Proposed Solar Share Percentage
2010	0.0120	0.0120
2011	0.0203	0.0203
2012	0.0325	0.0325
2013	0.0510	0.1500
2014	0.0840	0.1700
2015	0.1440	0.2040
2016	0.2500	0.2500
2017	0.2933	0.2933
2018	0.3400	0.3400
2019	0.3900	0.3900
2020	0.4433	0.4433
2021	0.5000	0.5000

Table 1. Current and Proposed Solar Share Requirement Percentages

RATEPAYER COST IMPACT

Methodology

Although HB1580 proposes a solar share requirement increase for only three years, this analysis extends out two additional two years because it is assumed the SREC pricing will take that long to reach steady state, meaning that the average SREC price will be the same by 2018 regardless whether HB1580 passes or not.

Table 2 below shows six years of the estimated current solar share requirement in SRECs for RY2013 through RY2018, as well as for the proposed HB1580 scenario. The solar requirement percentages are multiplied by the forecasted total retail electric sales in Pennsylvania, which are based on the PA PUC report, *Electric Power Outlook for Pennsylvania 2011 - 2015* (July 2011).

Calendar Year	Reporting Year	Est. Elect. Sales MWH (RY)	Current Solar Share		Proposed - HB1580	
			Solar Share (%)	PV SRECs (MWh)	Solar Share (%)	PV SRECs (MWh)
2012-2013	2013	147,429,544	0.0510	75,189	0.1500	221,144
2013-2014	2014	148,824,315	0.0840	125,012	0.1700	253,001
2014-2015	2015	150,234,430	0.1440	216,338	0.2040	306,478
2015-2016	2016	151,660,076	0.2500	379,150	0.2500	379,150
2016-2017	2017	153,101,443	0.2933	449,047	0.2933	449,047
2017-2018	2018	154,558,725	0.3400	525,500	0.3400	525,500

Table 2. Current and Proposed Solar Share Requirement Percentages and SRECs

Table 3 repeats the SREC requirement in both scenarios, which are multiplied by the assumed SREC prices to come up with the total costs, thus yielding the estimated total increased cost to ratepayers for HB1580.

Reporting Year	Current Solar Share Scenario			Proposed HB1580			Estimated Increased Cost
	PV SRECs (MWh)	SREC Price	Total Cost	PV SRECs (MWh)	SREC Price	Total Cost	
2013	75,189	\$50	\$ 3,759,453	221,144	\$190	\$ 42,017,420	\$ 38,257,967
2014	125,012	\$50	\$ 6,250,621	253,001	\$150	\$ 37,950,200	\$ 31,699,579
2015	216,338	\$50	\$ 10,816,879	306,478	\$125	\$ 38,309,780	\$ 27,492,901
2016	379,150	\$70	\$ 26,540,513	379,150	\$100	\$ 37,915,019	\$ 11,374,506
2017	449,047	\$80	\$ 35,923,723	449,047	\$90	\$ 40,414,188	\$ 4,490,465
2018	525,500	\$85	\$ 44,667,471	525,500	\$85	\$ 44,667,471	\$ -
Total	1,770,235		\$ 127,958,661	2,134,320		\$ 241,274,078	\$ 113,315,417

Table 3. Total Incremental Costs of HB1580

The assumed SREC prices for the current solar share scenario (without the passage of HB1580) are based what the oversupplied market is reflecting today. Based on feedback from several SREC aggregators and other solar professionals, as well as from SREC Trade (www.srectrade.com), Flett Exchange (www.flettexchange.com), and very recent average weighted PA SREC prices in GATS, it is assumed for this analysis the average SREC price is \$50 for the first three years, then slowly goes up to \$85 by 2018. Most of these sources indicate the current SREC price is down around \$10 to \$40, where GATS shows an average weighted price of over \$95.

However, SRECs are not selling right now, as SREC sellers are holding out towards the end of the reporting year waiting for higher prices; so it is assumed the price will probably spike a bit. As the current solar share requirement increases over the next few years and the oversupply diminishes, it is assumed the average SREC price will climb a bit more, assumingly to \$85 by 2018.

In the proposed HB1580 scenario, the average SREC price is assumed to be \$190 in RY2013, and is expected to continuously drop to \$85 by RY2018, to the same price as in the current solar share scenario. Although SREC prices in PA have been much higher in the past, there is strong agreement amongst many solar professionals that the day of the higher priced SREC is over. The passage of HB1580 will in effect bring the solar share requirement much closer to the SREC supply, consequently keeping the SREC price at bay. And as solar installation costs continue to drop, so will the average SREC prices, therefore they decline thereafter for this analysis.

Table 4 shows the cost impacts from HB1580 to the ratepayer in the form of an electric bill increase. As can be seen, the residential bill only increases less than 14 cents per month on average over the five years analyzed or *less than half a penny a day*; and under \$2 a month for commercial customers with an assumed annual electric usage of 150,000 kWh/yr.

10,716 ← Avg Residential kWh/yr Usage
 150,000 ← Assumed Commercial kWh/yr Usage

Reporting Year	Estimated Elect. Sales MWH (RY)	Estimated Increased Cost	Estimated Increased RIM \$/kWh	Increased Residential Cost		Increased Commercial Cost	
				Estimated Increased Res Cost (annual)	Estimated Increased Res Cost (monthly)	Estimated Increased Comm Cost (annual)	Estimated Increased Comm Cost (monthly)
2013	147,429,544	\$ 38,257,967	\$ 0.0002595	\$ 2.78	\$ 0.23	\$ 38.93	\$ 3.24
2014	148,824,315	\$ 31,699,579	\$ 0.0002130	\$ 2.28	\$ 0.19	\$ 31.95	\$ 2.66
2015	150,234,430	\$ 27,492,901	\$ 0.0001830	\$ 1.96	\$ 0.16	\$ 27.45	\$ 2.29
2016	151,660,076	\$ 11,374,506	\$ 0.0000750	\$ 0.80	\$ 0.07	\$ 11.25	\$ 0.94
2017	153,101,443	\$ 4,490,465	\$ 0.0000293	\$ 0.31	\$ 0.03	\$ 4.40	\$ 0.37
2018	154,558,725	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total		\$ 113,315,417		\$ 8.14	\$ 0.68	\$ 113.97	\$ 9.50
Average			\$ 0.0001520	\$ 1.63	\$ 0.14	\$ 22.79	\$ 1.90

Table 4. Increased Costs in Ratepayer Electric Bills

The unitary cost (\$/kWh) is calculated by dividing the total incremental cost by the total electric sales in PA; this is then multiplied by the average residential household electric usage in Pennsylvania, that being 10,716 kWh/yr (based on PA PUC report Electric Power Outlook for Pennsylvania 2010 - 2015 (July 2011)). The commercial customer example represents an assumed small to medium sized commercial customer. It is worth noting that these are pre-tax costs, so for-profit commercial and industrial customers will pay much less than these estimates based on their effective tax rate (ETR).

PennFuture Costs Estimates for HB 1580
Costs less than a penny per day to residential ratepayers

HB 1580 was introduced by Rep. Chris Ross (R-Chester) and currently boasts a bi-partisan co-sponsor list of 108 members. The bill would slightly adjust the solar energy requirement in Pennsylvania's landmark Alternative Energy Portfolio Standards Act (AEPS) to address a current imbalance in the supply for solar renewable energy credits (SRECs) that has led to a crash in the SREC market, putting solar jobs and businesses at risk.

HB 1580 would:

- Protect thousands of jobs in the solar energy industry. Pennsylvania is ranked #4 in the nation for the total amount of solar jobs.¹
- Increase the amount of solar in Pennsylvania which reduces strain on the local distribution system; offer cost benefits by lowering peak demand; and provides pollution-free energy.

Methodology:

PennFuture first calculated the number of SRECs required under the existing AEPS solar share from 2012-2015 and then for HB 1580.² For the current AEPS requirements an SREC price of \$70 was used from 2012-2015, based on PPL's most recent long-term SREC procurement priced at \$107.83 and current spot market prices hovering around \$20.00.³

For the HB 1580 requirements, SREC prices are assumed to increase to \$100 in 2012 and \$200 in 2015, based on conversations with solar developers and experts working in Pennsylvania. However, these prices do not factor in the current practice of utilities banking low cost SRECs, which will have a downward effect on these SREC price estimates.

PennFuture then calculated the cost per kilowatt-hour (kWh) based on the projected electric sales for each of these three program years. These rates were then applied to the average monthly consumption for each EIA-defined customer class to determine the impacts on customer's bills. The increased annual costs of HB 1580 equal:

Program Year (PY) 2012/2013 = \$0.000113/kWh
PY 2013/2014 = \$0.000195/kWh
PY 2014/2015 = \$0.000305/kWh

Costs to average residential ratepayers would be less than one cent per day.

PennFuture did not attempt to quantify the value of the co-benefits of HB 1580, but they are important to point out, such as: jobs saved or created, pollution avoidance, reduction in local distribution grid strain, lowering peak demand, wholesale price suppression, and reducing dependence on fossil fuels.

¹ 2011 Solar Census, The Solar Foundation

² Calculated from Energy Information Agency (EIA) electric retail sales data and growth rates from the PA PUC Electric Power Outlook for Pennsylvania 2009 - 2014 (July 2010)

³ PPL Electric Utilities <http://pplweb.mediaroom.com/index.php?s=12270&item=49199> and <http://www.srectrade.com/>